REMARKS/ARGUMENTS

The present Amendment is in response to the Office Action having a mailing date of October 6, 2004. Claims 1-21 are pending in the present Application. Applicant has added claims 22-24. Consequently, claims 1-24 remain pending in the present Application.

Claims 22-24 recite that the auxiliary engine is configured to be searched only if the longest prefix match for the key is not found in the main engine. Support for the amendment can be found in the specification, page 10, lines 20-21. Consequently, Applicant respectfully submits that no new matter is added.

In the above-identified Office Action, the Examiner required that Applicant affirm the provisional election with traverse of claims 1-6, 8-15, and 17-21. Applicant hereby affirms the election of claims 1-6, 8-15, and 17-21, with traverse.

In the above-identified Office Action, the Examiner rejected claims 1-2, 4-5, 8-9, 10-11, 13-14, and 17-21 under 35 U.S.C. § 102 as being anticipated by JP 2000-358064 (Masanori). The Examiner also rejected claims 3, 6, 12, and 15 under 35 U.S.C. § 103 as being unpatentable over Masanori in view of JP 2000-332786 (Kohei).

Applicant respectfully traverses the Examiner's rejection. Claim 1 recites a system for finding a longest prefix match for a key in a computer network. Claim 1 recites a main engine and an auxiliary engine. The main engine stores a first plurality of addresses and searches the first plurality of addresses for the longest prefix match for the key. The auxiliary engine stores and searches a second plurality of addresses. None of the first plurality of addresses in the main engine is a prefix for another address of the first plurality of addresses or of the second plurality of addresses. The second plurality of addresses can include a prefix for another address of the first plurality of addresses or the second plurality of addresses. Further, each of the second

plurality of addresses is distinct from each of the first plurality of addresses. Claims 10 and 20 recite an analogous method and computer-readable medium, respectively. Claims 19 and 21 recite a method and computer-readable medium which search the main engine described above. In particular, claims 19 and 21 recite that the main engine is searched and that the auxiliary engine is searched only if the longest prefix match is not found in the main engine.

Masanori fails to teach or suggest storing addresses in a main engine that are not prefixes of any other address in the main or auxiliary engines, and storing addresses that may be prefixes of other addresses in the auxiliary engine. Masanori describes a system that stores and retrieves addresses in two stages. In the first stage, shortened prefixes are stored. Masanori, paragraph 8, lines 5-8 (page 2 of 3). The second stage takes the form of a tree and stores longer addresses. Masanori, paragraph 8, lines 2-3 (page 2 of 3). During a search, the shortened prefixes in the first stage are searched for a longest prefix match. Masanori, paragraph 8, lines 8-11 (page 2 or 3). The longest prefix match corresponds to a node in the middle of the tree (an intermediate node) in the second stage. The tree is searched from this intermediate node to find the final answer returned. Masanori, paragraph 8, lines 15-18. Thus, the first stage of Masanori stores shortened prefixes. Each of these shortened prefixes is a prefix for some portion of the addresses stored in the second stage of Masanori. Consequently, the result of the search of the first stage of Masanori is an intermediate node of the tree of the second stage. The search is completed by traversing the branch of the tree in the second stage from the intermediate node corresponding to the resultant of the search of the first stage.

In contrast to the systems, methods, and computer-readable media recited in independent claims 1, 10, 19, 20, and 21, Masanori stores prefixes in both a first stage and a second stage. As discussed above, Masanori stores shortened prefixes in the first stage. Consequently, the first

stage of Masanori cannot correspond to the recited main engine. The second stage of Masanori stores addresses in the form of the described tree. At least the intermediate nodes in the second stage of Masanori correspond to prefixes of other addresses (further nodes on the branch of the intermediate node). As a result, the second stage of Masanori also cannot correspond to the recited main engine. Masanori thus fails to teach or suggest using a main engine to store addresses that are neither prefixes of another address in the main engine nor prefixes of addresses in the auxiliary engine. Consequently, Masanori fails to teach or suggest the systems, methods, and computer-readable media recited in claims 1, 10, 19, 20, and 21. Accordingly, Applicant respectfully submits that claims 1, 10, 19, 20, and 21.

Claims 2, 4-5, and 8-9 depend upon independent claim 1. Claims 11, 13-14, and 17-18 depend upon independent claim 10. Consequently, the arguments herein apply with full force to claims 2, 4-5, 8-9, 11, 13-14, and 17-18. Accordingly, Applicant respectfully submits that claims 2, 4-5, 8-9, 11, 13-14, and 17-18 are allowable as presented.

In the above-identified Office Action, the Examiner also rejected claims 3, 6, 12, and 15 under 35 U.S.C. § 103 as being unpatentable over Masanori in view of Kohei.

Applicant respectfully traverses the Examiner's rejection. Claims 3 and 6 depend upon claim 1. Claims 12 and 15 depend upon independent claim 10. Consequently, the arguments herein with respect to Masanori apply with full force to claims 3, 6, 12, and 15. In particular, Masanori fails to teach or suggest the use of a main engine and an auxiliary engine in which the main engine only stores addresses that are not prefix of any other address in the main or auxiliary engines.

Kohei fails to remedy the defects of Masanori. Kohei describes storing the difference between the address of a master node and an address of a slave node in lieu of storing the entire

address of the slave node. Kohei, PROBLEM TO BE SOLVED and SOLUTION.

Consequently, if the teachings of Kohei were combined with those of Masanori, the combination might store differences in addresses rather than the addresses themselves in the second stage of Masanori. However, the first stage of the combination would still return a prefix that corresponds to an intermediate node in the second stage. The second stage would still be a tree in which portions of the data stored (e.g. intermediate nodes) are prefixes of other data stored (e.g. other nodes on the branch of the intermediate node). Consequently, the combination of Masanori in view of Kohei still fails to teach or suggest the systems and methods recited in claims 3, 6, 12, and 15. Accordingly, Applicant respectfully submits that claims 3, 6, 12, and 15 are allowable over the cited references.

New claims 22-24 depend upon claims 1, 10, and 20, respectively. Consequently, the arguments herein apply with full force to claims 22-24. Accordingly, Applicant respectfully submits that new claims 22-24 are allowable over the cited references.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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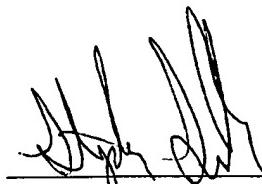
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